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UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Arnie J. Suomela, Commissioner

PROGRESS REPORT

on

THE FISH AND WILDLIFE RESOURCES of the ISKUT AND UNUK RIVER BASINS

ALASKA REGION

Juneau, Alaska
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For Administrative Use Only

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PREFACE

In October, 1957 the Alaska Region, Bureau of Commercial Fisheries, received information concerning a proposal to construct a hydroelectric project on either the Unuk River or the Iskut River (Figure 1), both of which contain spawning and rearing areas for fish runs important to Southeastern Alaska. This project was to be constructed by Granduc Mines, Ltd., with its production of 20,000 kw to be utilized in operation of their copper mine located on LeDuc Glacier. The Canadian Department of Fisheries later inquired concerning the fisheries resources involved and the need for fish protection facilities. Further correspondence indicated that interest was centered primarily on the Unuk.

Subsequently, the Branch of River Basin Studies conducted an aerial reconnaissance of both basins in June of 1958 and, in August of that year, initiated ground surveys of the lower Unuk tributaries to evaluate the fish and wildlife resources. This report summarizes the findings of these investigations.

Recent correspondence from the Canadian Department of Fisheries indicates that the development of neither site is considered imminent. Due to this fact and limitations on funds and manpower of the Branch of River Basin Studies, no investigations in this area are planned by the Fish and Wildlife Service for the summer of 1958.

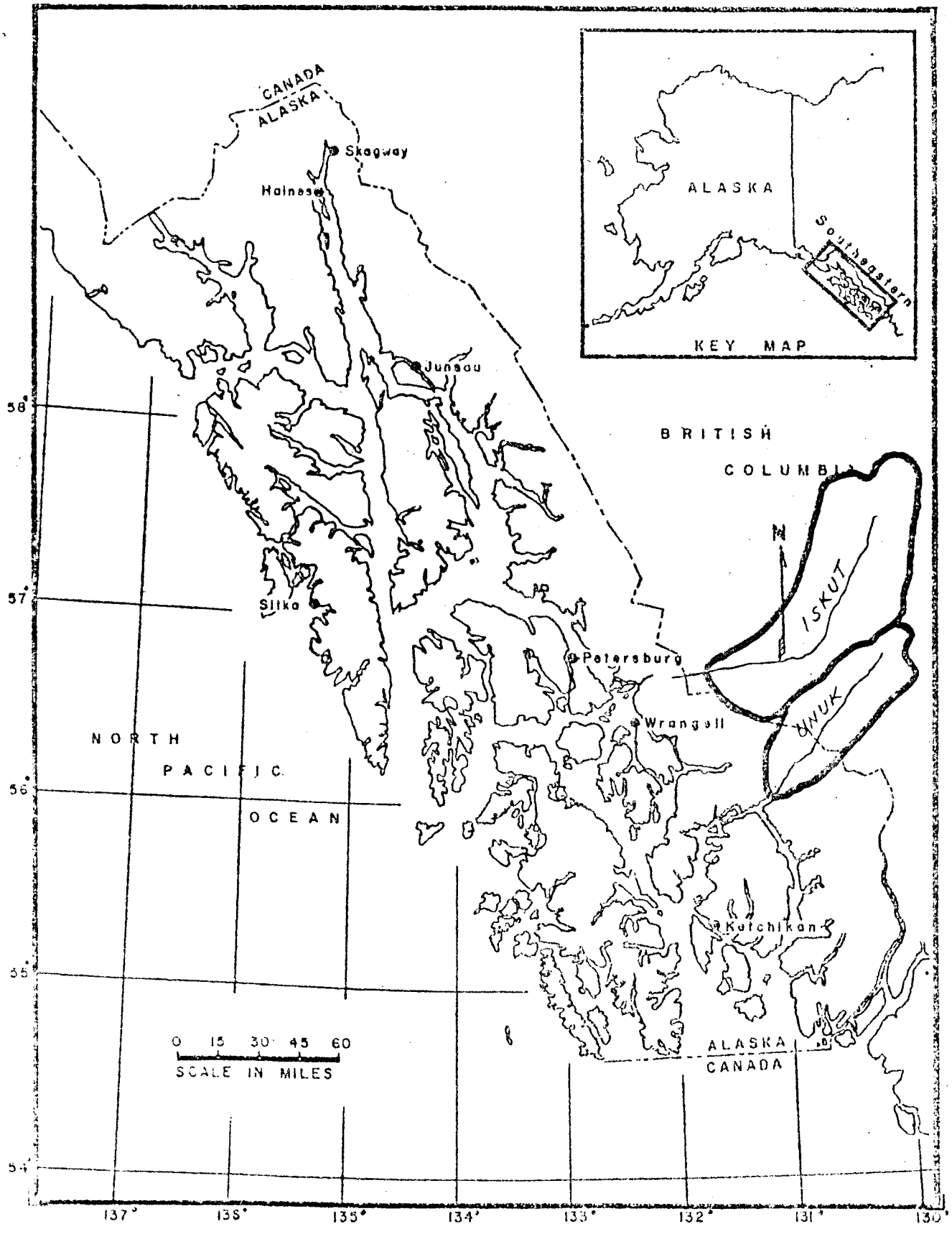

Figure 1. Map of Southeastern Alaska showing location of Unuk and Iskut River Basins.

DESCRIPTION OF THE BASINS

1. The basin of the Unuk and the lower forty miles of the Iskut are similar in many respects. Geologically, this area is a part of the Coast Range batholith, an immense mass of granitic rock intruded into surrounding strata at approximately the same time the Rocky Mountains were formed. Evidences of recent glaciation are obvious throughout this region and ice fields and glaciers still exist at the higher elevations. Coniferous forest, composed chiefly of western hemlock, Sitka spruce, western red cedar, and Alaskan cedar, covers much of both watersheds up to the timberline elevation. A dense, shrubby understory of blueberry and huckleberry exists beneath the forest canopy and, in the river bottoms, birch, cottonwood, and several species of willow grow profusely. The only commercial logging known in either basin is pursued on homesteads near the mouth of the Unuk.

2. The permanent populations of both basins are limited to a few homesteaders and their families, and do not exceed 100 persons.

3. The weather station nearest these drainages is at Stuart, British Columbia, where the average temperature during 1957 was 44°, and the total precipitation 60 inches.

4. The upper reaches of the Iskut traverse an area inland from the Coast Range and this section of the basin is more arid than the downstream reaches. The forest type here is subalpine and composed of

small, sparsely distributed black and white spruce.

Unuk River

5. This stream rises in the Coast Range and drains to the southwest where it enters Burroughs Bay approximately 56 miles northeast of Ketchikan (Figure 2). Due to the presence of numerous glaciers in the basin, the Unuk is very turbid, although certain of its lower tributaries are fairly clear--notably Eulachon Creek, Lake Creek, Dickens' Place Creek and Gene's Creek. The drainage basin is approximately 65 miles long, ranges up to 30 miles in width, and contains approximately 1,000 square miles. Velocities in the stream are swift due to its steep gradient, and innumerable massive logs are strewn along its gravel bars.

6. Except for two canyons and the stream's uppermost headwaters, the Unuk flows in a broad, gravelly bed with many interconnected channels. The two canyons are located approximately 16 and 22 miles upstream from the river's mouth. The lower, or First Canyon (Figure 3), is approximately $1\frac{1}{2}$ miles long and includes the confluence of the Blue River with the Unuk. The upper, or Second Canyon (Figure 4), is nearly 5 miles long and the lower end is about 1 mile beyond the boundary line on the Canadian side. An aerial tram was in place over Second Canyon, apparently for stream gaging purposes.

7. A riverboat, equipped with a 35 h.p. outboard motor and motor lift, was successfully used for the Unuk survey as far as Second

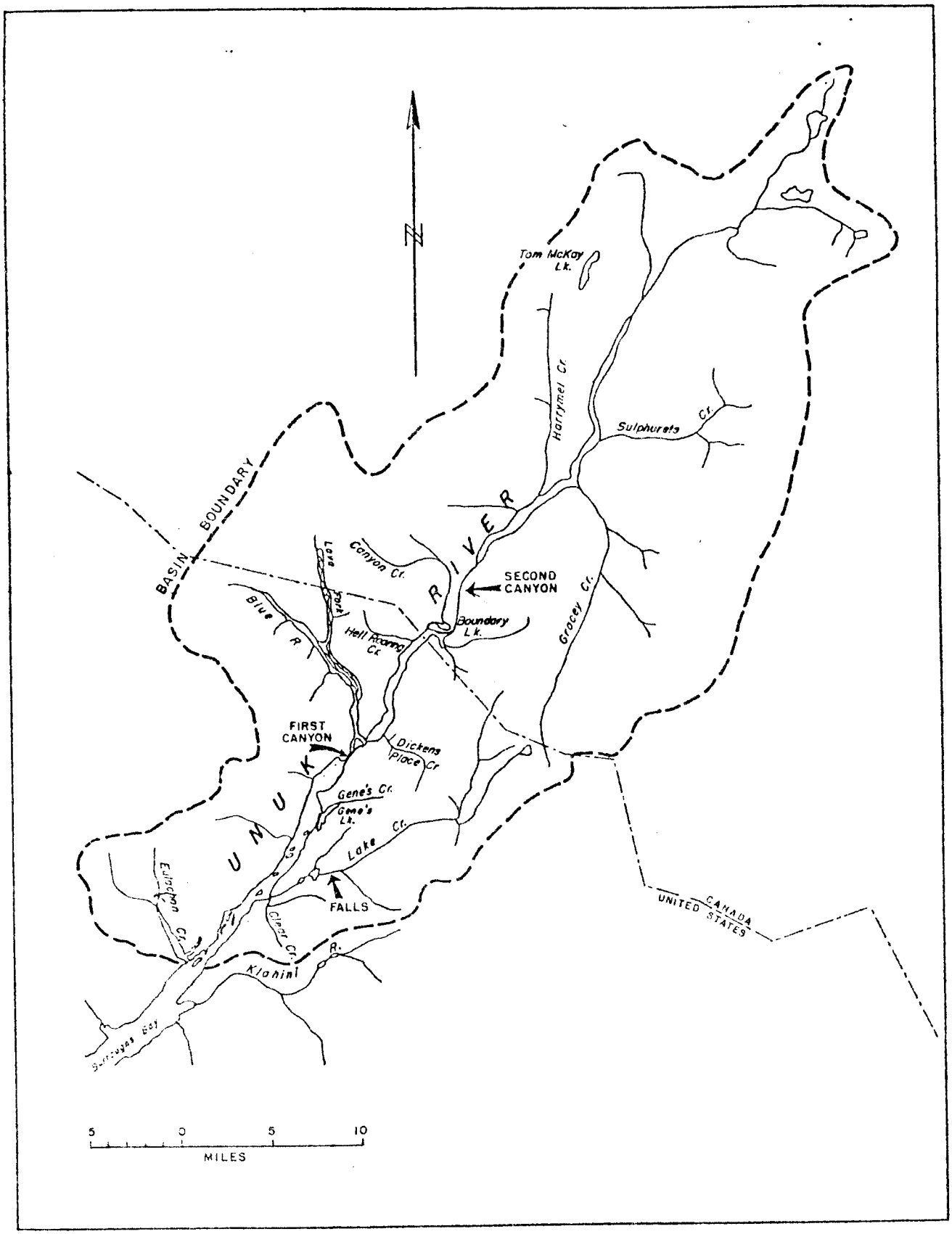

Figure 2. The Unuk River Basin

Canyon, where the operation was terminated. Travel here was considered possible but very hazardous, due to extreme water velocities and powerful cross currents. In most sections of the river, channels were sufficiently deep to cause no difficulty but, in certain broad, multi-channeled spots, the motor lift had to be kept in its highest position to prevent damage to the propeller. In only two places was it necessary to disembark and "line" the boat down due to very shallow conditions.

Photo by Melvin A. Monson

Figure 3. The Unuk River, approximately 16 miles upstream from the mouth. First Canyon is the narrow section to the right of the picture's center.

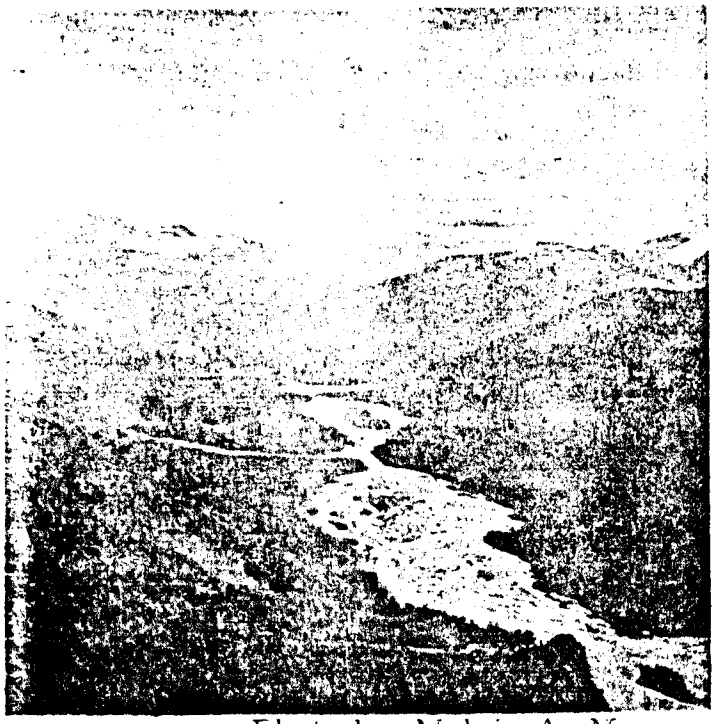

Photo by Melvin A. Monson

Figure 4. The Unuk River upstream from Second Canyon in Canada.

Iskut River

8. The Iskut (Figure 5) rises in a system of lakes located about 100 miles inland from the coast. It is the largest tributary of the Stikine, which it enters 35 miles above tidewater and 7 miles above the Alaska-Canada border. The Stikine discharges into the head of Sumner Strait 10 miles north of Wrangell. The headwater lakes of the Iskut and their elevations are: Ealue, 2,830 feet; Eddontenajon, 2,672 feet; and Kinaskan, 2,667 feet (Figure 6). A falls, estimated to be 40 feet high and considered a complete block to anadromous fish, exists approximately 3 miles below

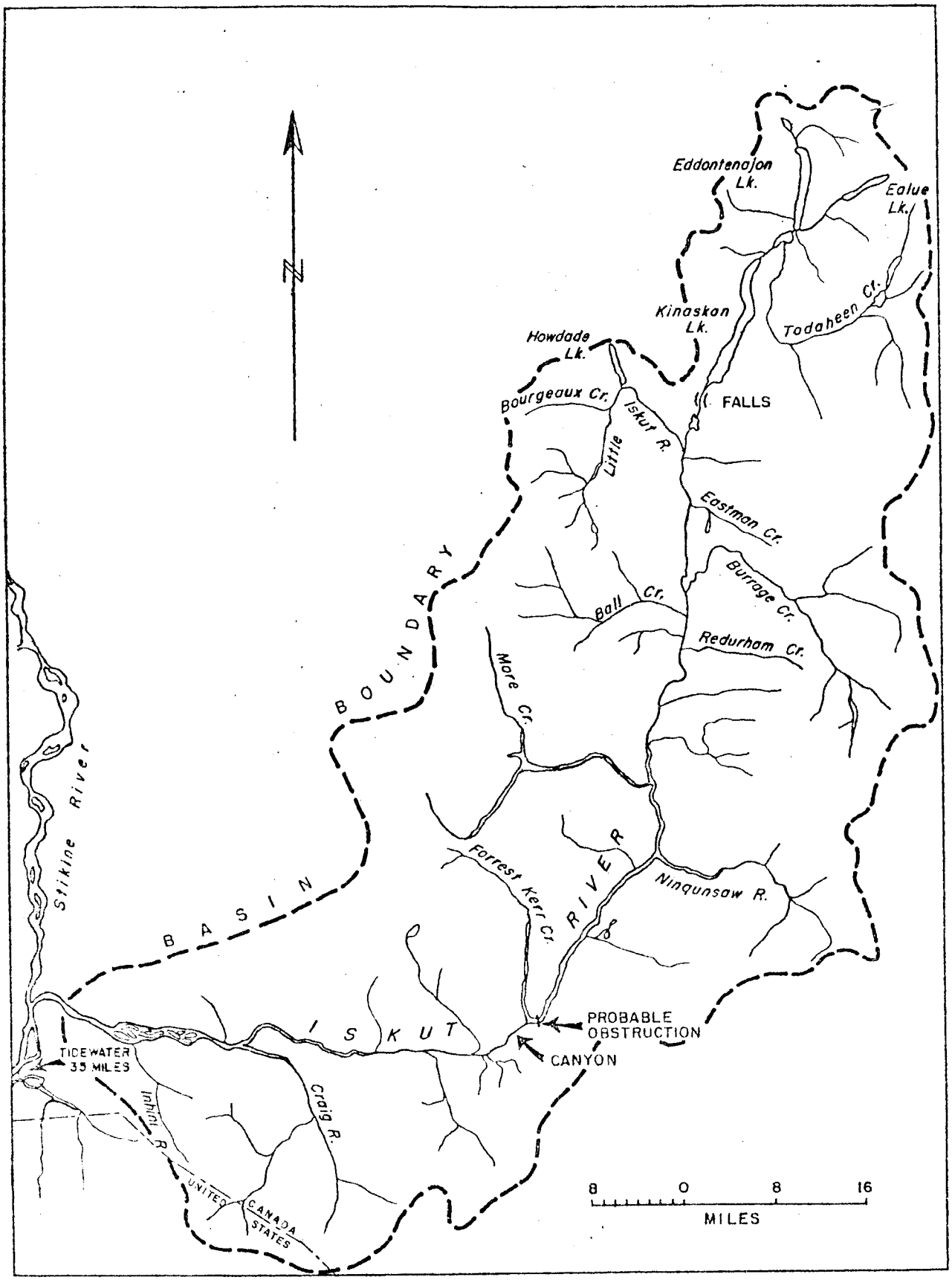

Figure 5. The Iskut River Basin.

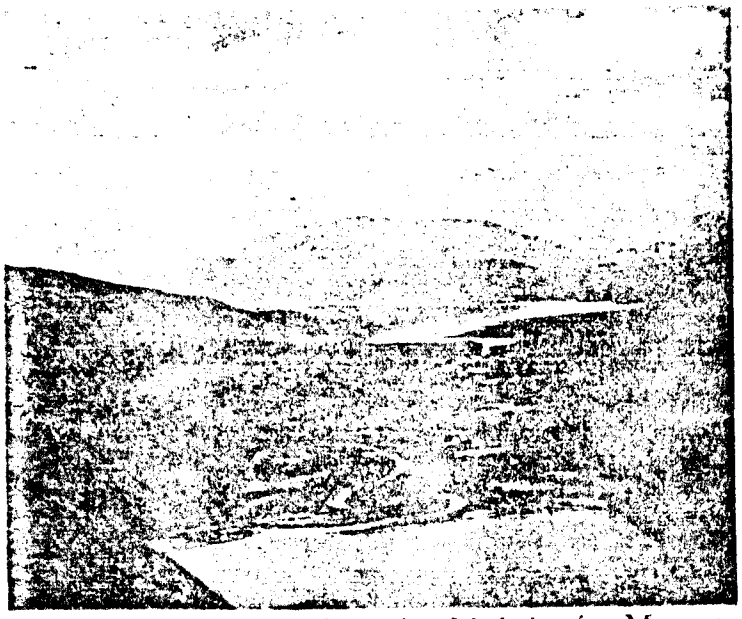

Photo by Melvin A. Monson

Figure 6. Kinaskan Lake near the headwaters of the Iskut River. Eddontenajon Lake appears just left of center.

Photo by Robert McVey

Figure 7. The Iskut River in the section below its confluence with the Little Iskut.

the latter lake. Six miles below Kinaskan Lake is the confluence of the Little Iskut River, which contains the outflow from Howdade Lake lying at 3,100 feet elevation. For a distance of approximately 25 miles downstream from the confluence of the Iskut and Little Iskut Rivers, the stream flows swiftly through a deep, slightly meandered gorge (Figure 7). Near the lower end of the section is a slide which appears to constrict the stream flow and to produce high water velocities. The next 30 miles of stream consist of many intertwining channels traversing a wide, gravelly bed. Three main tributaries enter the Iskut in this segment; More Creek, the Ningunsaw River, and Forrest Kerr Creek. Approximately $\frac{1}{2}$ mile above the confluence with the latter creek are two sections of stream which possess a very steep gradient and which probably obstruct fish passage, since persons familiar with the Iskut tributaries state that salmon have not been observed in streams above that point. For 12 miles below the entry of Forrest Kerr Creek, the Iskut flows through a deep canyon which contains several sharp bends, rocky outcrops, and semi-cascades, as well as a towering rock pillar. Some of these features may also produce hydraulic conditions obstructive to migratory fish at certain stream stages. Below the canyon, the stream resumes its multi-channeled, braided appearance for the remaining 35 miles to its mouth.

9. All the primary tributaries of the Iskut with the exception of the Inhini, located just 10 miles above the mouth, were glacially turbid

when the basin was surveyed on June 5, 1958. This date may have been so soon after spring breakup that stream stages were high--probably accounting, in part, for their turbid condition. Presumably, some secondary streams entering the primary tributaries, as well as some sloughs and oxbows, are clear. These waters probably account for much of the basin's salmon and trout production.

FISHERIES RESOURCES

Unuk River

10. The ground survey of the Unuk River began on August 8, when a 22-foot river boat was run to Burroughs Bay and the services of an experienced river boatman were obtained at the river's mouth. The actual survey work began on August 10 and continued through August 16; the streams surveyed and observations of their fish resources are contained in Table 1. As representative of escapements to each stream, these counts are not completely reliable inasmuch as 1) fish were still entering the system and 2) many dead fish could not be readily identified as to species and so are not included in these figures. The timing of the survey was considered about optimum for observations of pink, chum, king, and red salmon, and Dolly Varden char. Silver salmon probably continue entering the system until late November, however, and any steelhead trout, cutthroat trout and eulachon migrations would not peak until spring.

Table 1. Fishery Resources of Major Tributaries of the Lower Unuk River, August 10 to 16, 1958.

Stream	Est. 1/ Discharge C.F.S.	Distance Surveyed mi. above mouth	King Salmon	Red Salmon	Pink Salmon	Chum Salmon	Silver Salmon	Dolly Varden Char	Cutthroat Trout
Eulachon Creek	25	1½	some 2/	0	many 2/	many 2/	0	--	--
Lake Creek	35	to falls (app. 3mi)	many 2/	0	many 2/	some 2/	0	present	--
Clear Creek	10	½	70	30	3,000+	330	0	present	--
Gene's Creek	10	½	130	60	0	0	10	present	--
Blue River	100	1½	3/	0	0	0	0	--	--
Dicken's Place Creek	10	½	80 2/	0	4 2/	0	0	present	present
Canyon Creek	8	½	25	0	3	2	8	present	present

1) On basis of observation only; no measurements taken.

2) Turbid at time of survey; counts either not feasible or not fully reliable.

3) Whitewater and glacial turbidity prevented counts; no evidence of salmon run observed.

General descriptions of the tributaries surveyed follow:

Eulachon Creek

11. This tributary (Figure 8) is about 9 miles long and flows in a well-defined channel with dense willow growth along the margins. It enters very near the mouth of the Unuk and is known as Ooligan Creek by persons familiar with the stream. At the time of our survey, its waters were brown-tinged, as though by muskeg drainage, and reliable counts could not be made although many fish were seen (Table 1). Its depth ranges up to 8 feet and its width to approximately 50 feet. Our survey extended to a point about $1\frac{1}{2}$ miles above the stream's mouth and gravels appeared well suited to spawning within most of this section. The name "Eulachon" is appropriate, for it reportedly supports a large run of this smelt species. Natives from Ketchikan travel to the stream to harvest eulachon during its early spring migrations.

Lake Creek

12. Lake Creek is 20 miles long and drains a large valley, the upper reaches of which nearly parallel the basin of the Unuk on the south. Due to rapid snow melt at the time of our survey, its waters were moderately turbid, although salmon could be observed in the shallower areas. The lake to which the stream's name refers is located about $2\frac{1}{2}$ miles upstream from the creek's confluence with the Unuk. Salmon spawning (Table 1) was limited to the $\frac{1}{2}$-mile stream section between the lake and a 40-foot

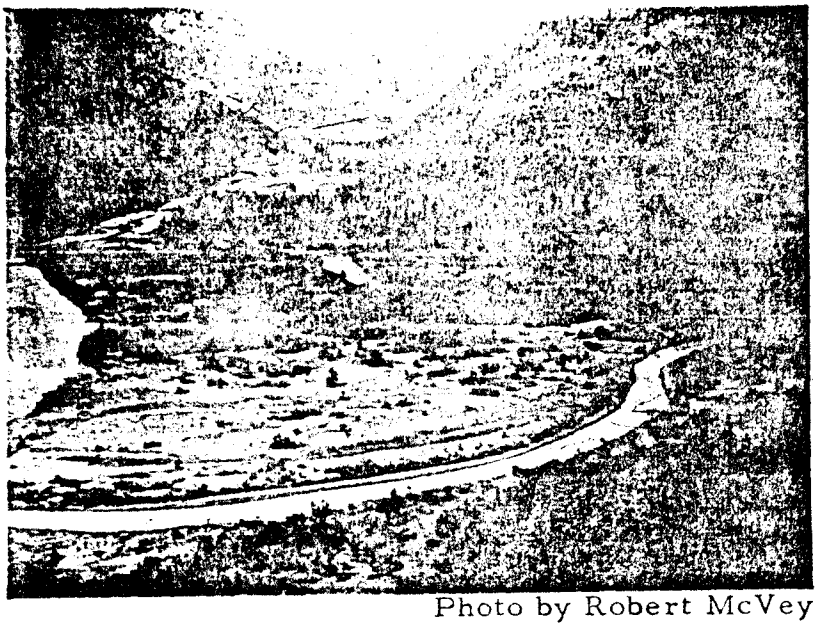

Photo by Robert McVey

Figure 8. View of Eulachon Creek basin and homesteads adjoining the mouth of the Unuk. The slough in the foreground is a channel of the Unuk River.

waterfall which must completely obstruct fish migration. The large pool just below this waterfall contained many pink salmon. The stream level had apparently subsided rapidly prior to our survey, for numerous small redds were evident on the beaches 2 to 3 feet above the existing water level. In the section below the waterfall, the stream ranges up to 100 feet in width and 10 feet in depth.

Clear Creek

13. This stream is a tributary of Lake Creek and was crystal clear at the time of our survey. It ranges up to 40 feet in width and possesses a distinct riffle-pool development. One excellent pool having a depth of over 6 feet is located about 3/8 mile above the confluence with Lake Creek. An

abundance of spawning pink, chum, red, and king salmon were observed here, plus numerous Dolly Varden char (Table 1). Although the stream contained a large number of fish, the available spawning area is limited to the lower section of about $\frac{1}{2}$ mile length, due to an abrupt increase in the stream's gradient above this point. The upstream reaches, approximately 3 miles long, appeared to consist entirely of boulder-strewn cascades with negligible spawning area.

Gene's Creek

14. Gene's Creek is $2\frac{1}{4}$ miles long and enters a lake (Figure 9) lying at or very near the elevation of the Unuk, which passes only a few hundred yards away. It was crystal clear and possessed excellent spawning gravels in the $\frac{1}{2}$-mile length surveyed. Its width ranged up to 40 feet and its depth to 4 feet. Although the time available did not permit surveying the full length of the section accessible to fish, it is evident from the topographic map that the gradient must increase abruptly, as in Clear Creek, thus limiting the length suitable for spawning. Gene's Creek may be the most important producer of king salmon in the lower Unuk Basin (Table 1).

Blue River

15. This stream cascades into the Unuk (Figure 10) as the latter passes through First Canyon. A lava flow (Figure 11), which originated

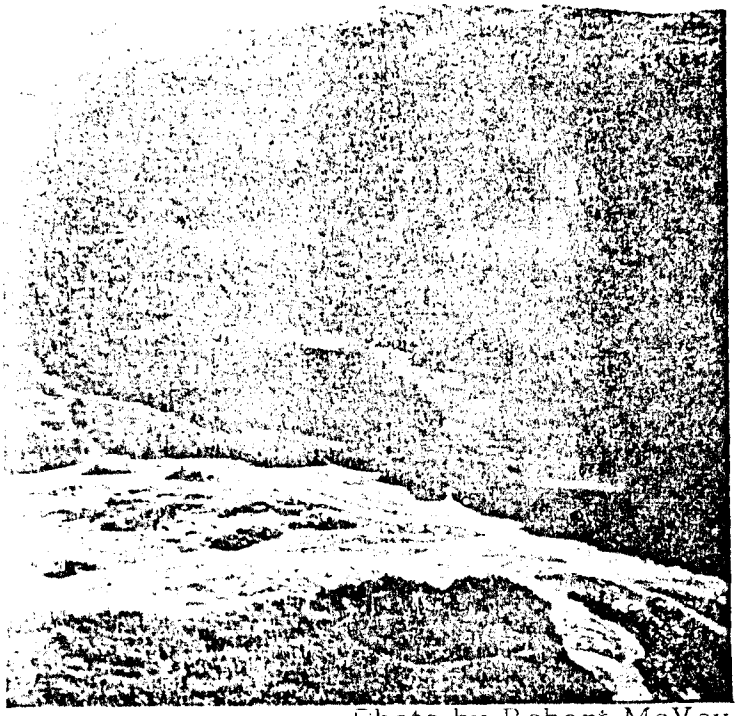

Photo by Robert McVey

Figure 9. View of Gene's Lake with Unuk River in the foreground. Gene's Creek enters the lake near the center of this view.

Photo by Robert McVey

Figure 10. The entrance of Blue River into the Unuk.

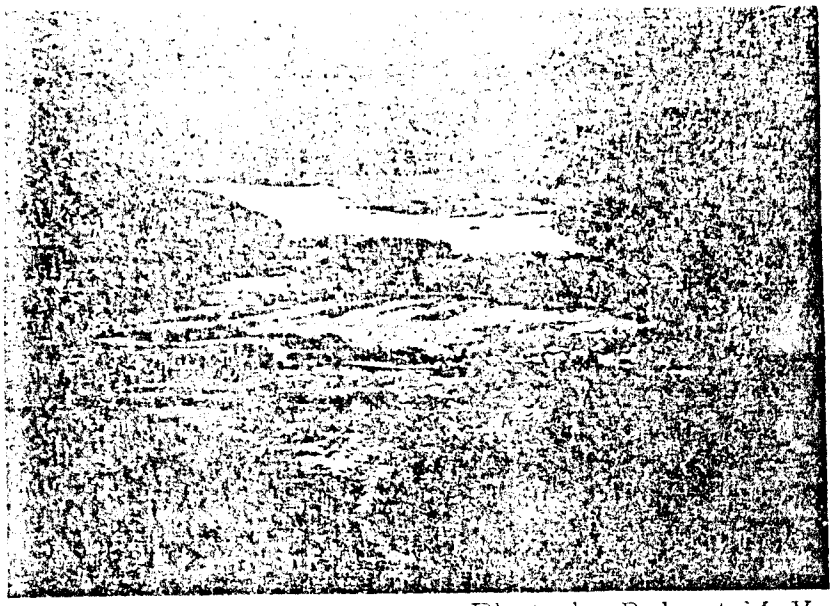

Photo by Robert McVey

Figure 11. The Unuk River Basin, with First Canyon shown at the right. Blue River crosses the lava flow to enter the Unuk at the far right. The large delta of Dickens' Place Creek is visible just above the center of the picture.

near the head of Lava Fork of the Blue River, traveled down that basin and fanned out onto the valley floor of the Unuk, reaching the hills on the side opposite its point of entrance. The Blue River has cut a channel directly through the fan-shaped lava deposit. This stream is the largest tributary of the Unuk and ranges up to 300 feet in width. Its depth could not be estimated due to the stream's turbulent, white-water nature and to the blue-gray turbidity of its waters. The latter characteristic was presumed to result from solution of materials in the lava deposit. No evidence of a salmon run in Blue River was observed in the $1\frac{1}{2}$ miles surveyed.

Dickens' Place Creek

16. This stream flows into the Unuk from the east just upstream from First Canyon. At the time of our survey, its waters possessed a slight glacial color. Its total length is about $3\frac{1}{2}$ miles, its width ranges to 40 feet, and its depth to 4 feet. The excellent riffle-pool development and gravel deposition appeared to be well suited for salmon spawning in the lower $\frac{1}{2}$ mile covered during the ground survey. The stream gradient was found to be slight and the stream channel was well defined in this section. Dense stands of timber were present along the stream on both sides. Bear predation on king salmon was considered extensive here, and 9 brown bear were sighted during the survey. A total of 80 king salmon were noted in the section surveyed (Table 1). Dolly Varden char and cutthroat trout were abundant.

Canyon Creek

17. Canyon Creek rises high in the mountains west of the Second Canyon and flows in an easterly direction for about $6\frac{1}{2}$ miles. It then parallels Second Canyon for a distance of about 2 miles before discharging into Boundary Lake. The outlet stream of Boundary Lake is dispersed over a broad, marshy area for a distance of about 1 mile. Dense growths of sedge and reeds are present in this area and there is no evidence of a distinct channel. The stream emerges from this marsh into a well defined channel and traverses a wooded area for about $\frac{1}{4}$ mile, then discharges

into the Unuk River. The stream in this lower section ranges up to 30 feet in width, possesses excellent gravels and riffle-pool development, and contains several excellent pools with depths exceeding 5 feet. The water was relatively clear at the time of our survey, which extended upstream to the marshy area, where a dense growth of sedges and reeds prevented further travel. A few king, pink and chum salmon were seen in the lower $\frac{1}{2}$ mile of the stream, and 8 silver salmon were observed in the marsh (Table 1). Signs of beaver activity and remnants of their dams were noted in the stream section surveyed.

Iskut River

18. Inasmuch as no ground surveys have yet been conducted in this basin, the following information is derived from interviews with persons having knowledge of the Iskut, primarily Mr. A. V. Ritchie of Wrangell who presently operates a barge service on the Stikine River.

19. Reportedly, the two sections of river just above Forrest Kerr Creek, which possess a very steep gradient, are complete obstructions to anadromous fish, none having been seen further upstream. Forrest Kerr Creek is glacial and, at the time of our aerial survey, did not appear to provide spawning habitat. However, immediately downstream on the Iskut are several tributaries said to be utilized by many chum salmon. Red, king, and silver salmon have also been observed spawning in these streams. The Craig River was turbid at the

time of our aerial survey but its broad valley contains many beaver ponds which are said to provide spawning and rearing areas for large numbers of red salmon.

WILDLIFE RESOURCES

Unuk River

20. Big game present in this basin include black, brown, and grizzly bear, moose, and mountain goats. Bear trails, sign, and salmon kills were present along all the streams surveyed except Blue River. One black bear was seen on Lake Creek, and 9 brown bears were sighted along Dickens' Place Creek. Tracks of a lone moose and those of a single wolf were seen on a sandbar approximately 18 miles upstream from the river's mouth. Tracks of these two species were also noted on the beaches below Lake Creek falls. Mountain goats have been seen on the higher slopes surrounding Eulachon Creek valley. Hunting pressure on moose and mountain goats is limited primarily by the lack of nearby human population centers.

21. Considerable evidence of beaver activity was observed throughout the basin, and especially on Lake Creek. Mink, marten, land otter and wolverine occur in the drainage, although the present trapping intensity is low due to poor fur prices. Rabbits and lynx are also reported from the basin, the latter species being found particularly in the upstream reaches. Small groups of ducks were seen on

both of the lakes which were surveyed. Several flocks of Canada geese were seen--one containing 12 birds at Dickens' Place Creek, another containing 8 birds at Lake Creek, and 2 or 3 flocks containing an undetermined number near the mouth of the Unuk. Homesteaders near the mouth of the Unuk reported that geese normally winter in this area.

Iskut River

22. Since wildlife resources of the Iskut are a Canadian interest, little information has been collected concerning them, although the basin is known as an excellent producer of fur animals. Presumably, the lower reaches of the Iskut Basin possess wildlife values quite similar to those of the Unuk.

SUMMARY

23. As a result of a hydroelectric development proposed for construction on either the Unuk River or the Iskut River, the Branch of River Basin Studies of the Fish and Wildlife Service conducted aerial surveys of these basins in June of 1958. As subsequent information indicated that primary interest was centered on the Unuk, a ground survey of this basin, intended to evaluate the fish and wildlife resources, was conducted during the period August 8 through 16, 1958. This report summarizes the data obtained during this survey, as well as other information which resulted from interviews with persons familiar with the basin.

24. The ground survey effort extended upstream in the Unuk basin as far as Second Canyon, where treacherous water conditions were encountered. In the streams surveyed to this point, a total of 305 king salmon, 90 red salmon, more than 4,000 pink salmon, and more than 500 chum salmon were observed, as well as a few silver salmon. Dolly Varden char were present in the streams supporting salmon migrations, and cutthroat trout were found in two tributaries --Dickens' Place Creek and Canyon Creek. A run of eulachon is reported from Eulachon Creek. General descriptions are presented of the tributaries surveyed.

25. If further ground surveys in the Unuk are subsequently required, primary emphasis should be placed on reaching the upstream tributaries located in Canada. Due to the treacherous waters of Second Canyon, use of a riverboat to reach these streams is considered hazardous. As an alternate method, the feasibility of using a helicopter should be explored. A brief gill netting program could be conducted with this craft, and it could be used to transport survey personnel to tributaries for on-the-ground observations. It might also be found possible to survey certain of the streams directly from the low-flying helicopter.

26. Although no ground survey was conducted in the Iskut Basin, persons interviewed reported that salmon are not found in tributaries upstream from Forrest Kerr Creek. Several tributaries entering the Iskut in the section downstream from Forrest Kerr Creek support runs of pink, chum, and red salmon.

27. The wildlife resources of the Unuk Basin include black, brown and grizzly bear, moose, mountain goat, and wolves. Much evidence of beaver activity was seen and mink, marten, land otter, wolverine, lynx, and rabbits are reported from the drainage. The lakes of the basin have considerable value as nesting places for several species of ducks and Canada geese.